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Docket No. 24180-124-004 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re U.S. Patent Application of:

Applicant: CURIE *et al.*

Serial No.: 09/901,427

Filed: July 9, 2001

For: TRANSPARENT MULTILAYER POLYPROPYLENE CONTAINER WITH BARRIER PROTECTION

Art Unit: 3627

Examiner: R. Dye

37 C.F.R. § 1.132
DECLARATION OF DR. ROBERT KNOLL

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

I, the undersigned Robert Knoll, Ph.D., declares the following:

1. I am an employee of Pechiney Plastics Packaging, Inc. and was a co-worker of the named inventors on the filing date of the present invention.
2. I have received a Bachelor of Science degree in Nuclear Engineering (1973), a Masters of Science degree in Nuclear Engineering (1974), another Masters of Science degree in Materials Science (1978), and a Ph.D. in Engineering Physics/Nuclear Engineering (1981), all from the University of Wisconsin at Madison on the dates respectively indicated.
3. I have over twenty years of experience as an innovative engineer and applied materials scientist. My experience as a materials scientist includes substantial research and analysis of polymers and polymer processing. For example, in my approximately eight years as a senior technical staff member at Johnson Controls, Inc., I conducted research and development

projects related to polymer blending (including polymer blending for injection molding) and biaxial large-strain deformation of hot polymers. In the approximately six years I have currently spent as a senior research associate of materials development with Pechiney Plastic Packaging, Inc., I have conducted research and development projects related to development, analysis and implementation of polymers into production lines to improve product performance and manufacturing efficiency.

4. I have reviewed the disclosure filed in the above-identified patent application, including the specification, the drawings and the claims as filed with this application and with parent application Serial No. 09/293,401. I have also read the Office Action mailed September 24, 2002 in the present application (the "Office Action"), including the two paragraphs of numbered page two thereof which comprises the following quote:

> Applicant only discloses maleic anhydride as the adhesive. Therefore, one having ordinary skill in the art would not have know what other materials could be used in applicant's invention as an "adhesive" for bonding layers.

I consider myself to be one of ordinary skill in the field of this invention and, for at least the reasons stated herein, I disagree with this assessment of the disclosure in this patent application.

5. The Abstract Of The Disclosure in this patent application states that the container of the invention has "an adhesive such as maleic anhydride concentrate mixed therein to adhere the layer of polypropylene to the layer of EVOH." As one of ordinary skill in the art, I understand this portion of the Abstract Of The Disclosure to state that maleic anhydride concentrate is one possible adhesive that may be used to accomplish the objective of adhering the polypropylene layer to the EVOH layer. However, I also understand the words "such as" to qualify that

disclosure of maleic anhydride concentrate as only one possible adhesive and indicate that the invention contemplates other adhesives as well.

6. The very first sentence of the Summary Of The Invention in this patent application describes that one of the polypropylene layer and the barrier layer of the container "comprises an adhesive mixed therein." As one of ordinary skill in the art, I understand this portion of the Summary Of The Invention to leave the choice of adhesive to the reader. This is consistent with the Abstract Of The Disclosure which provides the example of maleic anhydride concentrate, but indicates that the invention contemplates others.

7. Since, in my experience, the Abstract Of The Disclosure and the Summary Of The Invention succinctly convey the main features of the invention, I consider it significant that the broad term "adhesive" was used to describe the invention in both of these portions of the present application rather than the specific maleic anhydride modified polypropylene composition. As one of ordinary skill in the art, this tells me that the invention contemplates more than just maleic anhydride modified polypropylene.

8. As one of ordinary skill in the art, the remainder of the application also indicates to me that the adhesive is to be chosen by the reader as the reader sees fit. The application does not limit the adhesive to maleic anhydride modified polypropylene. Specifically, the application uses the generic term "adhesive" forty plus time to describe the invention in the first eight and one half pages. Only when describing the examples from page nine on, does the application identify maleic anhydride modified polypropylene.

9. The specification also expressly directs myself and others skilled in the art to chose an adhesive as we see fit. Specifically, page 5, lines 13-15 of the application states:

> An appropriate adhesive (discussed in detail below) is chosen dependant upon the material of the middle layer 26 to bond the inner and outer layers 24, 28 thereto. (Emphasis added)

I understand this sentence to clearly direct myself and others skilled in the art to chose whatever adhesive we wish, so long as it is "appropriate" for adhering the layers as described in the application. As one of ordinary skill in the art, I understand this portion of the application to describe the adhesive of the invention as limited only to those adhesives that will accomplish the adhesion of the layers. Determining whether a particular adhesive would be "appropriate" could be accomplished without undue experimentation.

10. I have read page 9, lines 13-15, of the disclosure stating that:

> The adhesive used to make the polypropylene/adhesive mixture for the first embodiment of the present invention is maleic anhydride modified polypropylene. The amount of adhesive that must be blended into the polypropylene depends on the maleic anhydride concentration of the adhesive.

As one of ordinary skill in the art, I do not believe that these two sentences overrule the remainder of the disclosure to limit the adhesives disclosed for use with the first embodiment of the invention to maleic anhydride modified polypropylene. The first embodiment earlier described generically as employing an "adhesive" in the paragraph spanning pages 6 and 7 of the application. Specifically, the application states:

> Thus, in a first embodiment of the present invention, the inner and outer layers 24, 28 may comprise a mixture of polypropylene and an adhesive ("polypropylene/adhesive mixture") while the middle layer 26 is comprised of EVOH without an added adhesive. Examples of this first embodiment are provided below.

Furthermore, this portion of the application indicates that the later reference to maleic anhydride modified polypropylene is a mere example of the available adhesives. It specifically indicates that further detail will be provided by way of the examples. Thus, the reference to maleic anhydride modified polypropylene on page 9, line 13-15 of the application appears to me, as

one of ordinary skill in the art, only to be giving a broad description of the enumerated examples of the first embodiment, as predicted by the above quote from page 7 of the application. It would make no sense to describe the adhesive generically throughout the invention, including for the first embodiment, only to later limit the it to one particular adhesive.

11. When page 9, lines 13-15, of the application is read in light of the entire application (specifically including the Abstract Of The Disclosure, the Summary Of The Invention, the express direction of page 5, lines 13-15, to chose an "appropriate adhesive," and the broad description of the first embodiment as employing an "adhesive" with examples to follow), I understand the specific reference to maleic anhydride modified polypropylene on page 9, lines 13-15, to be a mere example of the adhesive. I do not understand that reference to maleic anhydride modified polypropylene as limiting either the described invention or the first embodiment to that one example.

12. Being directed by the present application to chose an "appropriate adhesive," myself and others skilled in the art would turn to, among other sources, prior patents to reveal appropriate adhesives. I have reviewed U.S. Patent Application No. 3,932,692 to Hirata et al. ("Hirata"). Hirata teach that maleic anhydride modified polypropylene and many other adhesives are capable of bonding a layer of polyolefin (such as polypropylene) to a layer of ethylene-vinyl acetate copolymer (such as EVOH).

13. Having been directed by the present application to chose an "appropriate adhesive," myself and others skilled in the art would have considered experimentation with the adhesives disclosed by Hirata to be within the teachings of the present application. Determining whether the adhesives disclosed by Hirata are "appropriate" would not require undue experimentation.

14. Maleic anhydride modified polypropylene has a base chain of polypropylene with functional groups of maleic anhydride located along the base chain. Therefore, a composition comprised of only maleic anhydride modified polypropylene has a plurality of polypropylene base chains with functional groups of maleic anhydride located along some of the base chains. Such a maleic anhydride modified polypropylene may be purchased from vendors at various concentrations of maleic anhydride.

15. Blending maleic anhydride modified polypropylene with polypropylene achieves a composition having polypropylene base chains with functional groups of maleic anhydride located along some of the base chains in a predetermined concentration of maleic anhydride. This composition is not functionally different from a maleic anhydride modified polypropylene having the same concentration of maleic anhydride for purposes of manufacturing containers as described in the present application.

16. Myself and others skilled in this art use vendor purchased maleic anhydride modified polypropylene interchangeably with mixtures of polypropylene and vendor purchased maleic anhydride modified polypropylene. Reference to maleic anhydride modified polypropylene typically means that either is appropriate. In fact, unless the mixture is specifically excluded, I would consider either appropriate.

17. Vendors typically make available maleic anhydride modified polypropylene products with predetermined concentrations of maleic anhydride. Therefore, these maleic anhydride modified polypropylene products are often blended with polypropylene to dilute the concentration of maleic anhydride down to the desired concentration of maleic anhydride when the desired concentration is not available from a vendor. The decision of whether or not to blend a maleic

anhydride modified polypropylene product with a polypropylene is driven by the maleic anhydride concentrations available and the concentrations required.

18. The examples in the present application blend off-the-shelf maleic anhydride modified polypropylene products with a polypropylene.

19. The interchangeability of an off-the-shelf maleic anhydride modified polypropylene product and polypropylene blended with a maleic anhydride modified polypropylene product was well known to myself and others of ordinary skill in the art by at least April 17, 1998.

20. All statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code, and such willful false statements may jeopardize the validity of any patent confirmed hereon.

Respectfully Submitted,

Date: April 7, 2003

Robert W. Knoll, Ph.D.

Robert Knoll, Ph.D.